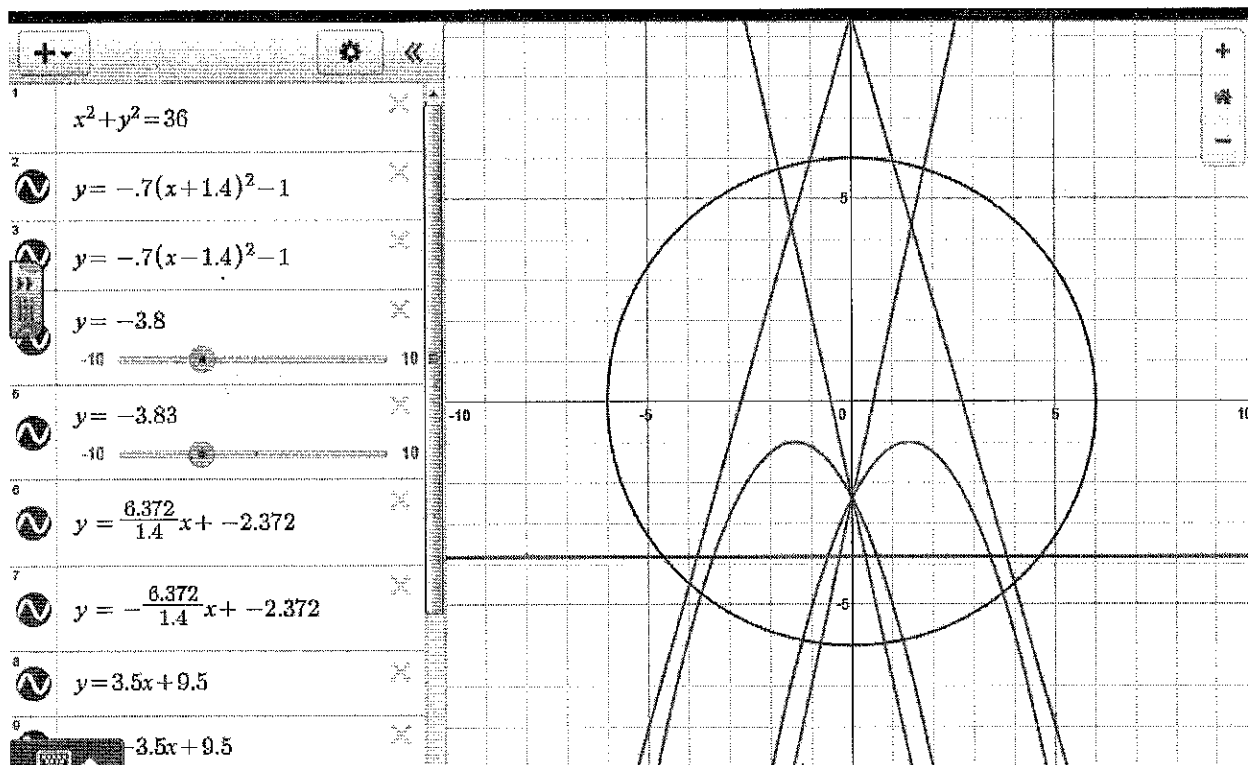
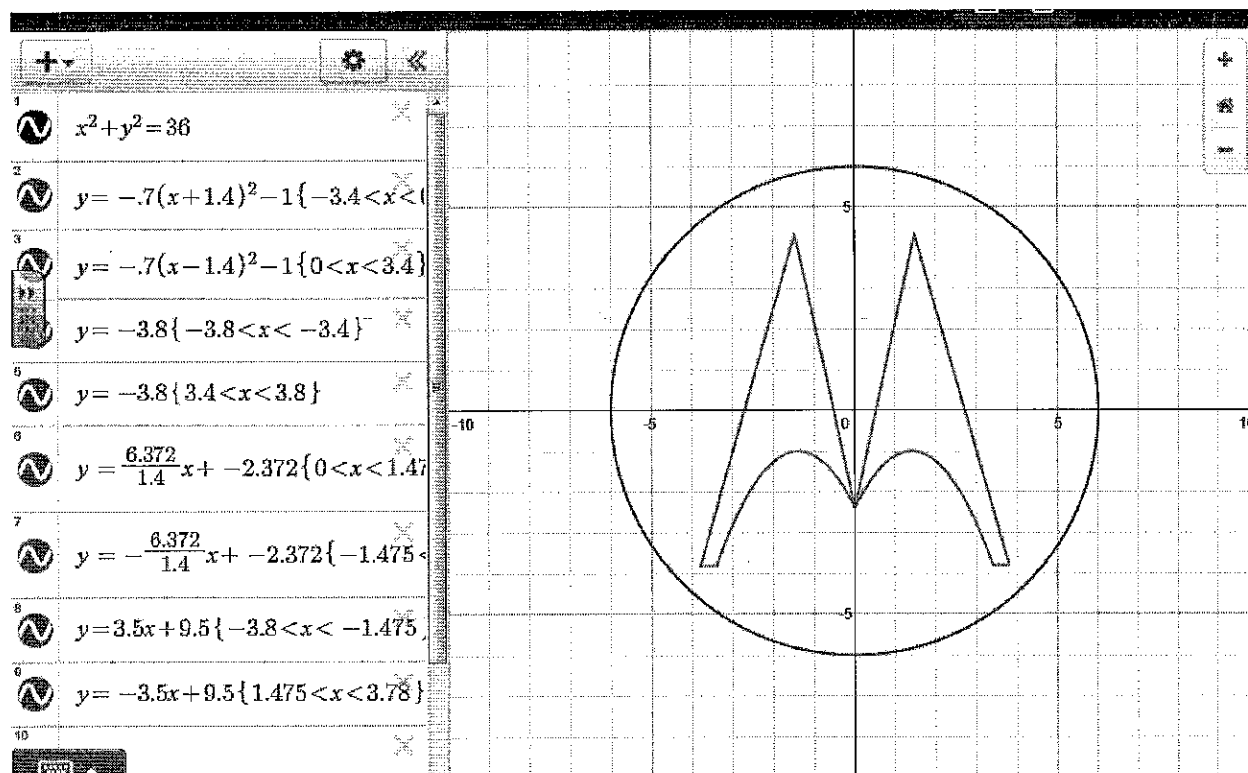


# Mrs. Hayden (sample project)

Graph without any restrictions to the domain and or range.

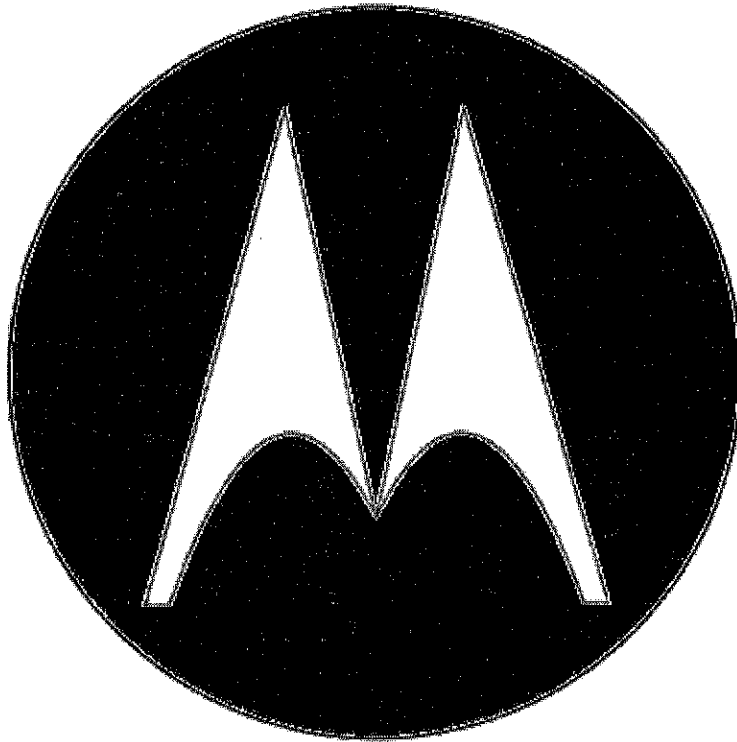


Graph with restrictions added to the domain for several equations.



Copied and pasted into paint

Print in color or color on own



Show work + show computer image.

Intersections

2 conics

$$\begin{cases} y = -.7(x+1.4)^2 - 1 \\ y = -.7(x-1.4)^2 - 1 \end{cases}$$

$$\begin{aligned} -.7(x+1.4)^2 - 1 &= -.7(x-1.4)^2 - 1 \\ (x+1.4)^2 &= (x-1.4)^2 \\ x^2 + 2.8x + 1.96 &= x^2 - 2.8x + 1.96 \end{aligned}$$

$$5.6x = 0$$

$$x = 0$$

$$\begin{aligned} y &= -.7(1.4)^2 - 1 \\ &= -1.372 - 1 \end{aligned}$$

$$(0, -2.372)$$

2 lines

$$\begin{cases} y = \frac{-6.372}{1.4}x - 2.372 \\ y = 3.5x + 9.5 \end{cases}$$

$$y = 3.5x + 9.5$$

$$3.5x + 9.5 = \frac{-6.372}{1.4}x - 2.372$$

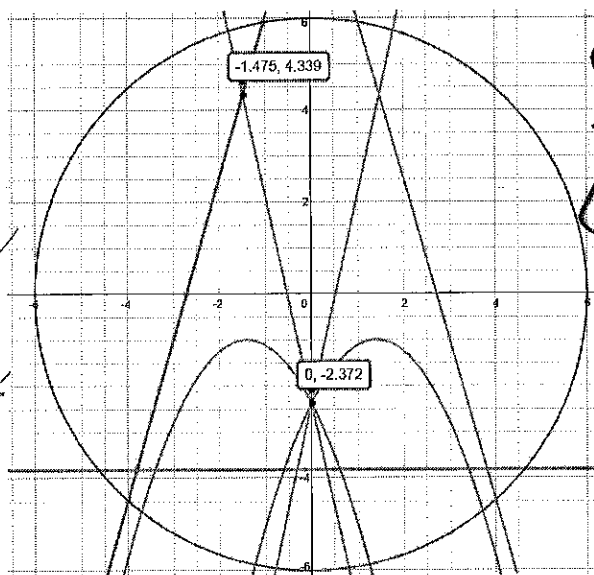
$$8.051x = -11.872$$

$$x = -1.475$$

$$y = 3.5(-1.475) + 9.5$$

$$y = 4.339$$

$$(-1.475, 4.339)$$



Links to both graphs will be posted into a google doc.

<https://www.desmos.com/calculator?tour=tables>

<https://www.desmos.com/calculator?tour=tables>

These will be uploaded to a google doc that is accessible from my wiki.

## Reflection

- This section should discuss how one example of each conic section is used in your picture
- How the domain or range was limited in the picture (you do not need to describe every location but more than one would be nice)
- Give a detailed look at the development of one equation. (what changes you made until you were satisfied)

The Motorola symbol uses parabolas for the bottom of the “m” and the entire symbol is enclosed in a circle.

I needed to limit the domain for my parabolas and my lines so that the graphs would stop at the intersections. The top of the “m” is created by two lines with limited domain. The bottom of the “m” was created by a line intersecting another line and the parabola. I limited the domain for all three graphs to create a smooth picture.

When writing the parabolas for the bottom of the “m”, first I selected a vertex based on the symmetry of the graphs. I placed one vertex in quadrant 3 and later the symmetrical graph’s vertex in quadrant 4. I was able to choose an ‘a’ value by adjusting on Desmos and seeing what worked well. Once I was satisfied, I wrote the equation to the symmetrical graph in quadrant 4.